A close-up photograph of a bright green gecko with red spots on its head, resting on a dark, textured surface. The gecko's body is covered in a pattern of small, rounded scales.

Herpetology

Biology 489

Luke J. Harmon

Fall 2017



Dr. Luke J. Harmon, LSS 347
Phone: 885-0346; Email: lukeh@uidaho.edu

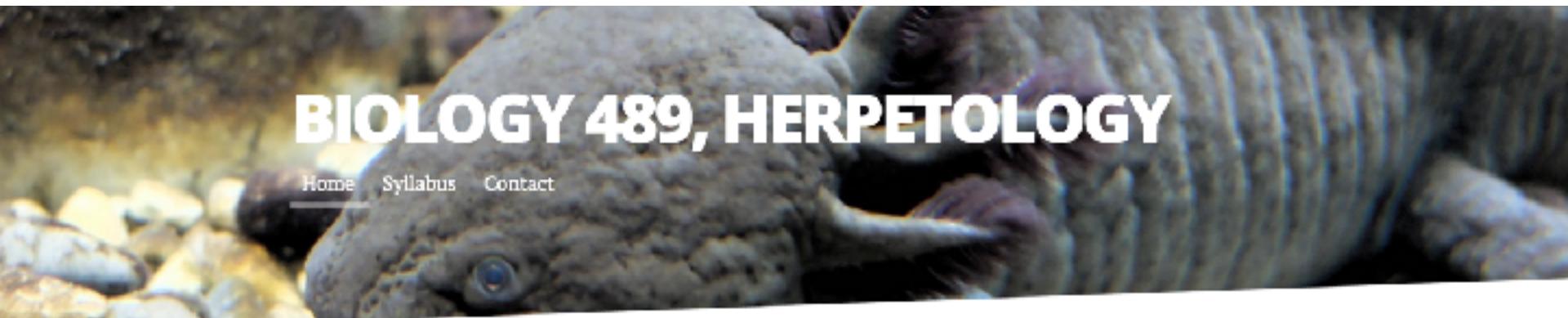


Office hours: after class

- Life Sciences South (LSS) 347
- or by appointment (these are welcome!)

Dr. Luke J. Harmon, LSS 347

Phone: 885-0346; Email: lukeh@uidaho.edu



BIOLOGY 489, HERPETOLOGY

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Recent Posts

August 20, 2015

Macroevolution

Lecture 1 on Macroevolution is here

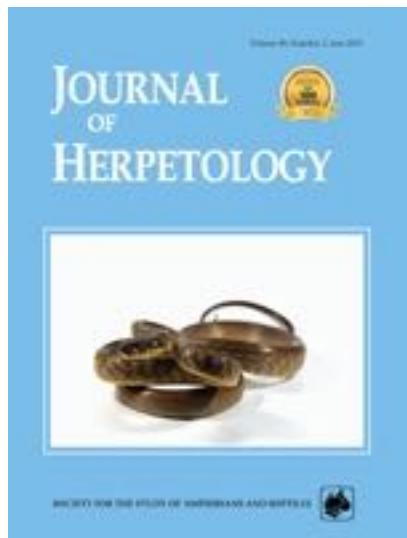
lukejharmon.github.io/herpclass

Herpetology

FOURTH EDITION

F. HARVEY POUGH
ROBIN M. ANDREWS • MARTHA L. CRUMP
ALAN H. SAVITZKY • KENTWOOD D. WELLS
MATTHEW C. BRANDLEY

(optional)



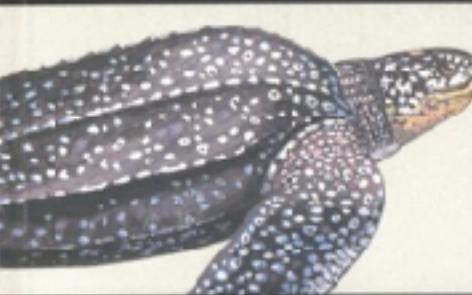
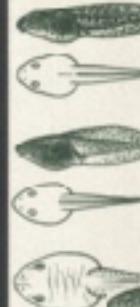
PETERSON FIELD GUIDES®

Western

Reptiles and Amphibians

Third Edition

NEWLY
REVISED AND
IN FULL
COLOR



Robert C. Stebbins

required and you
need it by next week!

Course grading

Participation in Friday skypes	15%
Group Research Proposal	10%
Lab	25%
Exam I	15%
Exam II	15%
Final	20%
	100%

Course grading

Participation in Friday skypes	15%
Group Research Proposal	10%
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Exam I	15%
Exam II	15%
Final	20%
	100%

Fridays = “meet the herpetologist”



Lauren Sallan, U Penn



Class



Famous
Herpetologists

Course grading

Participation in Friday skypes	15%
Group Research Proposal	10%
Lab	25%
Exam I	15%
Exam II	15%
Final	20%
	<hr/>
	100%

Class Presentations

- Present a research proposal in lab on Nov. 17
- 15 minute class presentations
- Small groups (3 or 4 students)
- Key components:
 - What is known?
 - What is your question?
 - How can you answer that question?
- **Turn in a written summary and a budget**

Course grading

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Group Research Proposal	10%
Lab	25%
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Exam II	15%
Final	20%
	100%

Course grading

Participation in Friday skypes	15%
Group Research Proposal	10%
Lab	25%
Exam I	15%
Exam II	15%
Final	20%
	100%

Exams

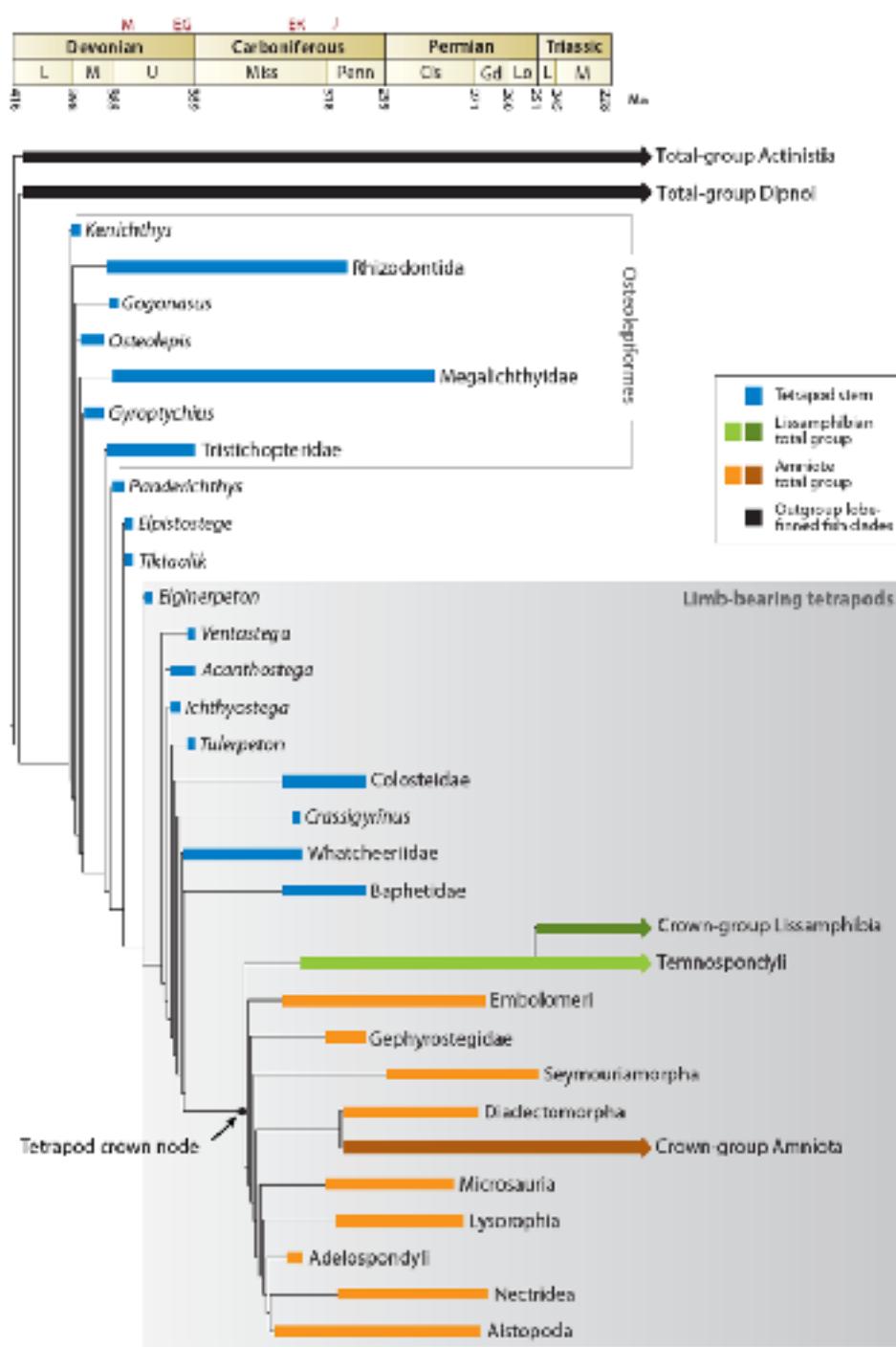
- Exams are all short-answer questions
- The final will be **comprehensive**
- I will post examples of old exam questions on blackboard
- Note that the exams are 50% of your grade

Policies

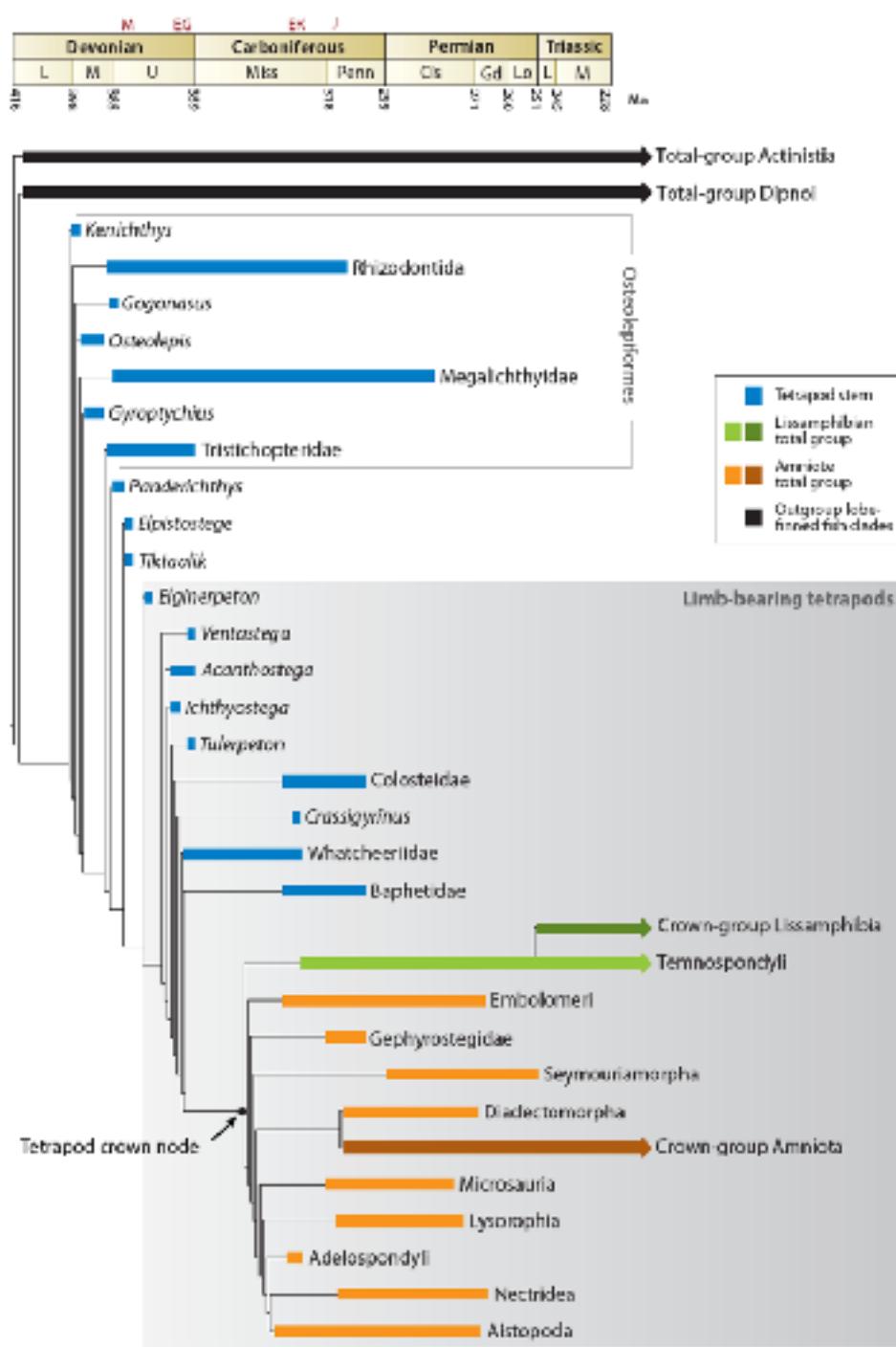
- Plagiarism and cheating: no thanks
- Make-up policy: let me know in advance; no make-ups for final
- Late assignments: 10% per day

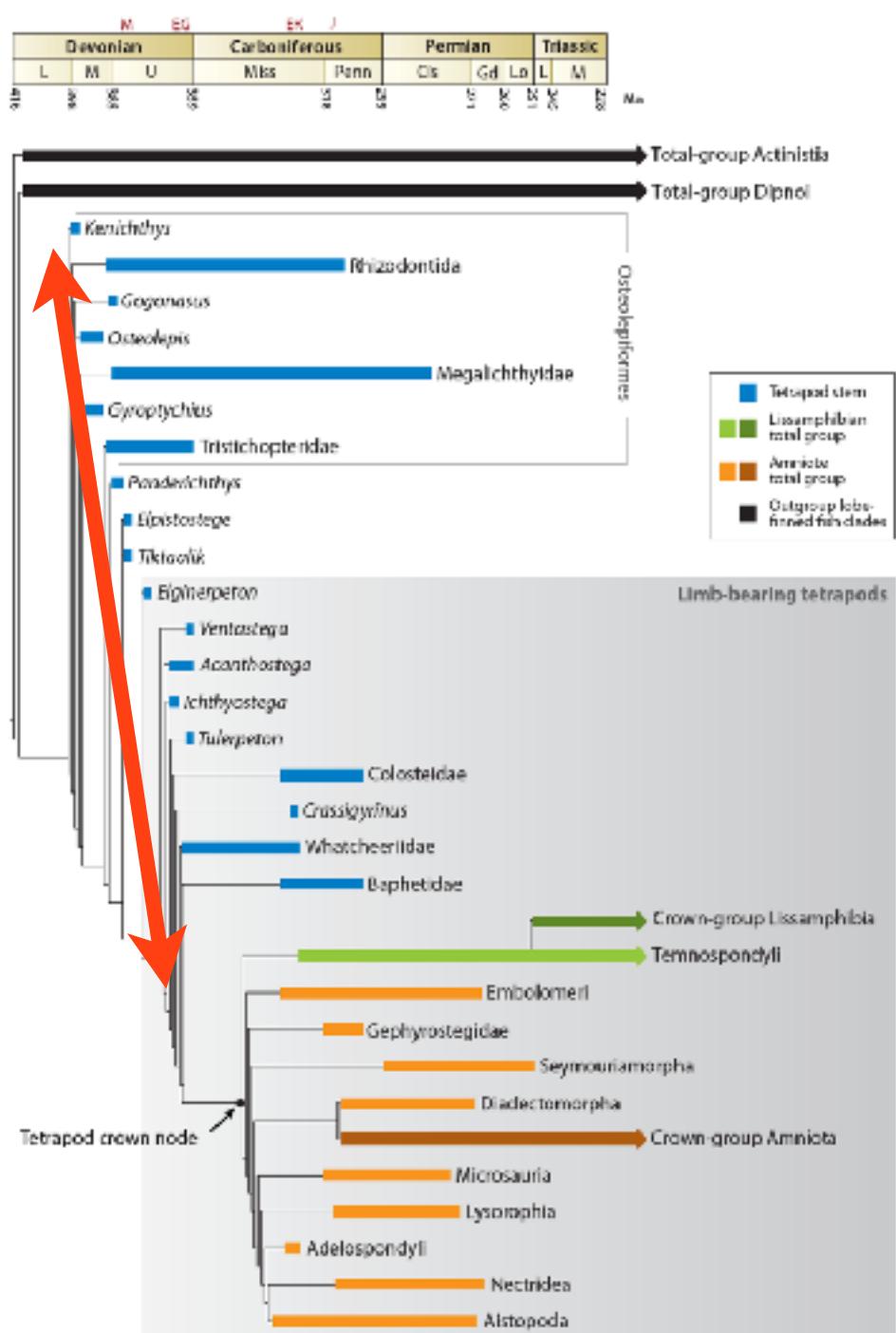
Where did reptiles and amphibians come from?





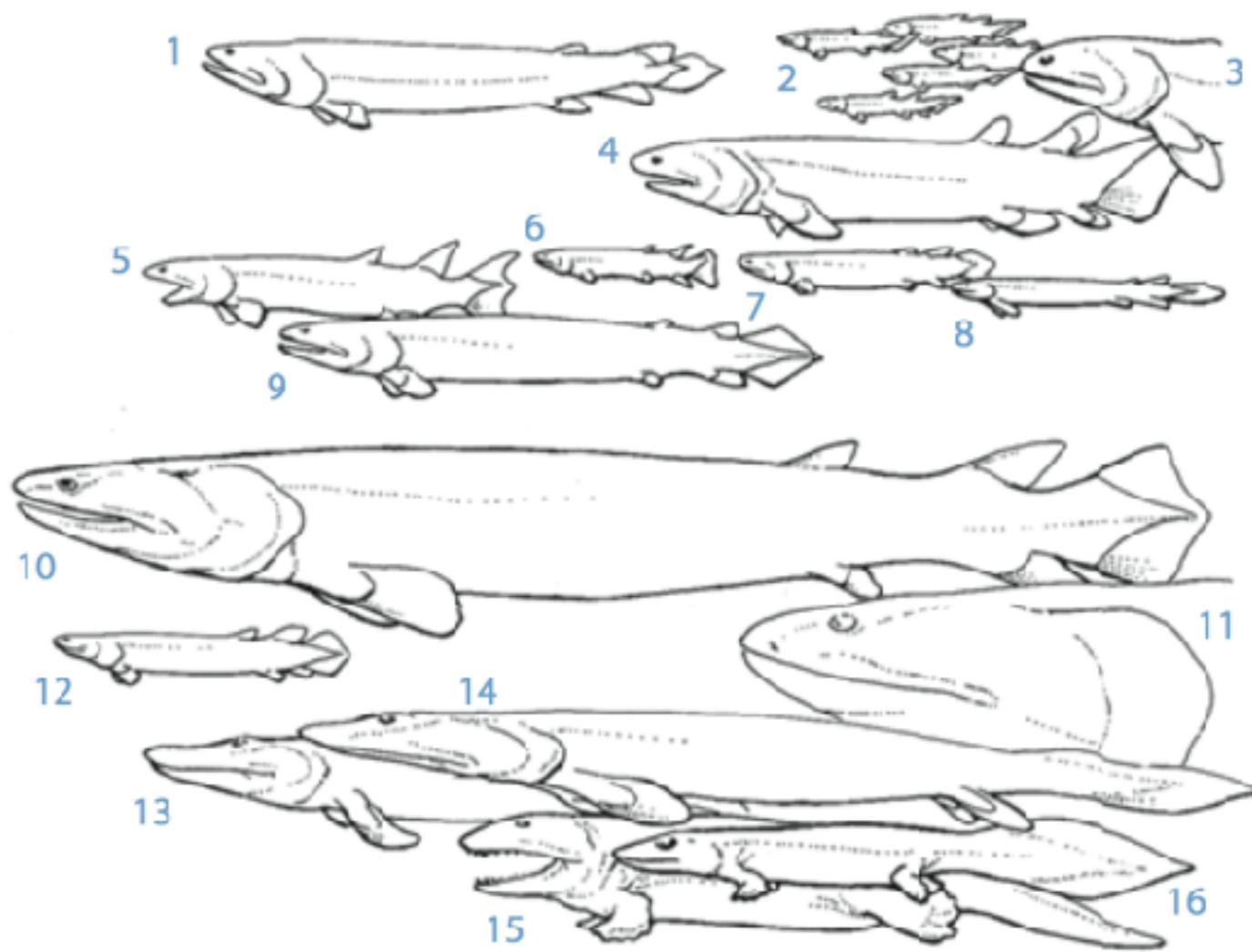
There are **hundreds of fossil taxa** that document the transition from lobe-finned fish, to tetrapods, and then to amphibians, reptiles, and mammals



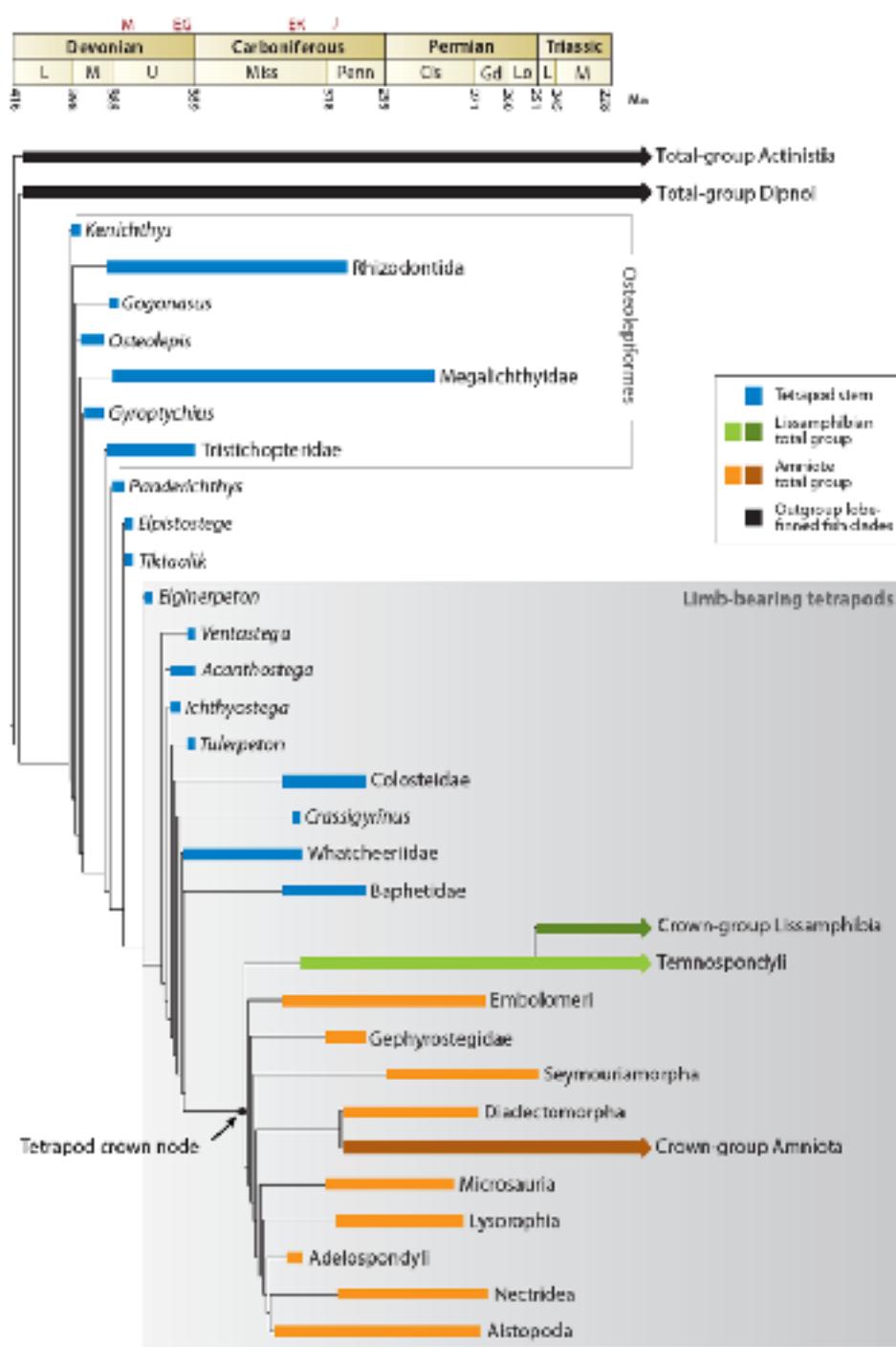


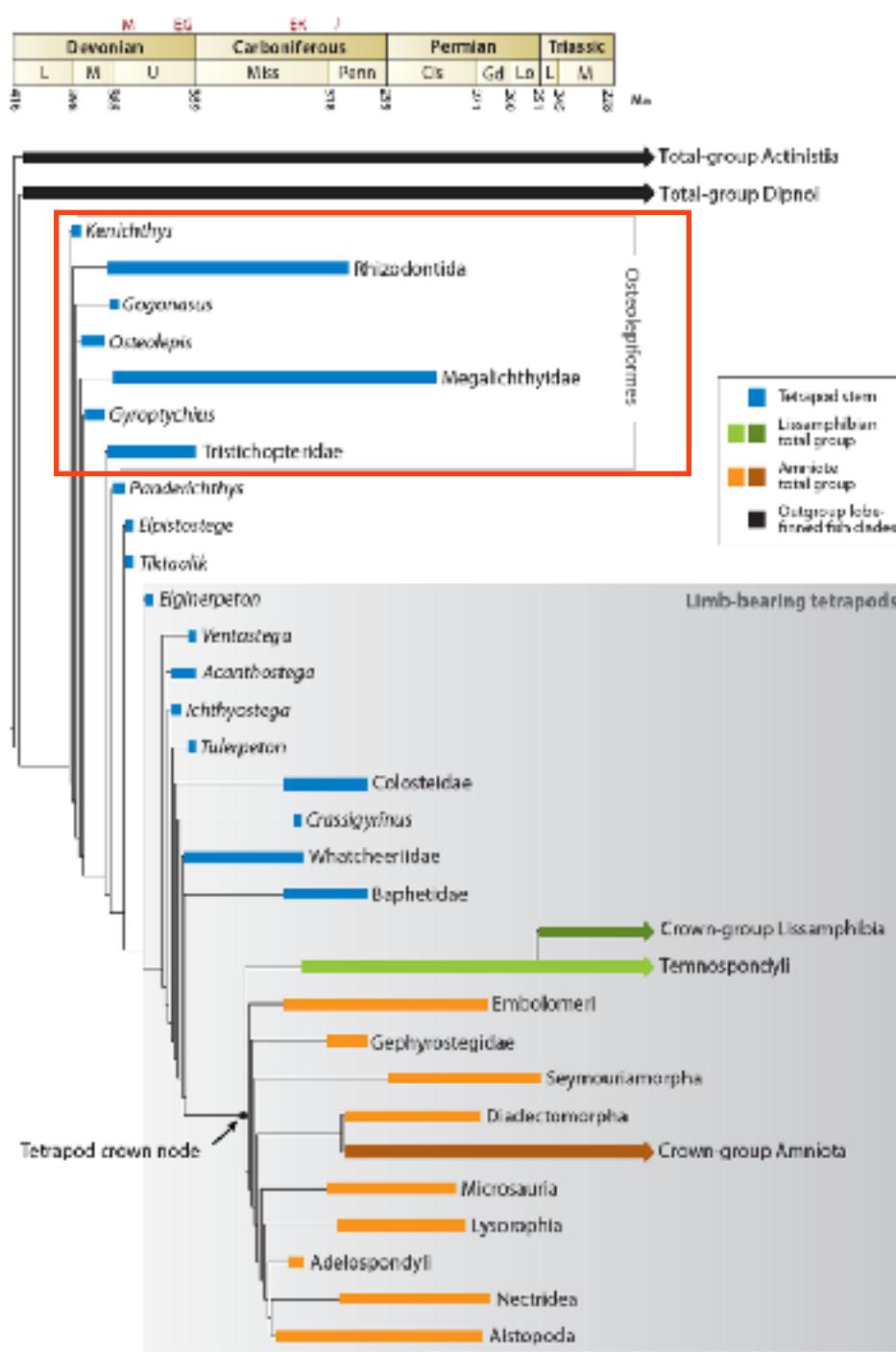
Lineages from the “tetrapod stem”
tell the tale of the emergence of tetrapods

Devonian tetrapods

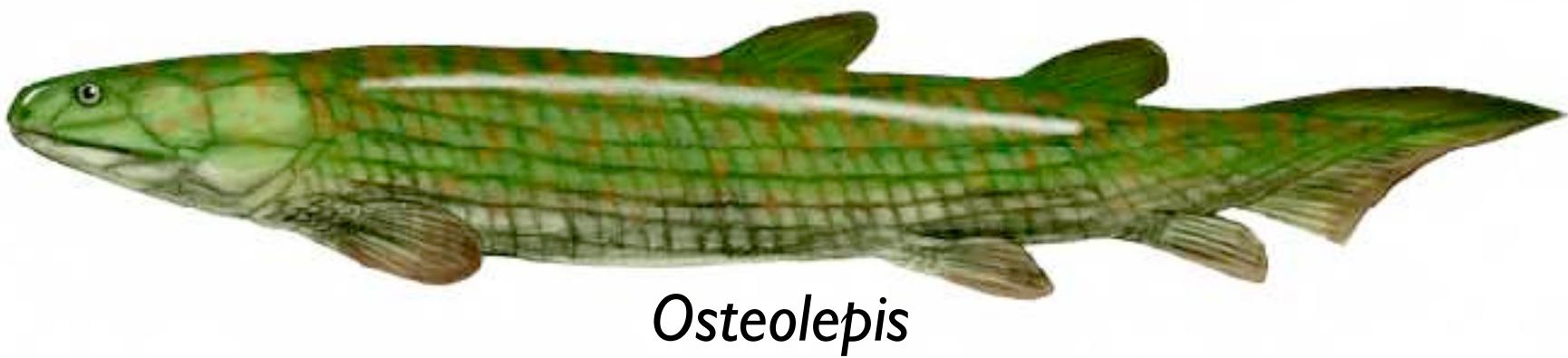


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Osteolepiformes

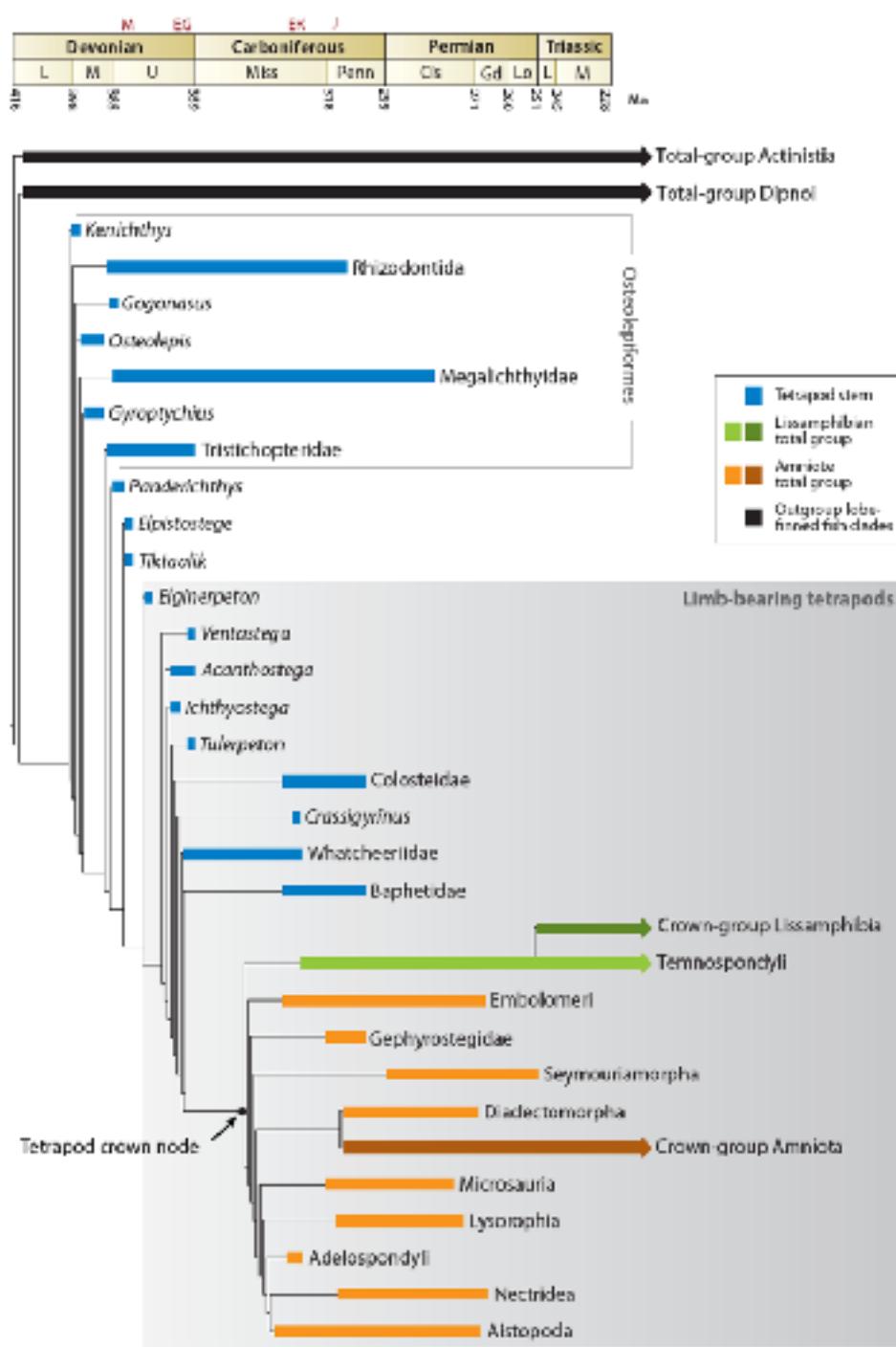


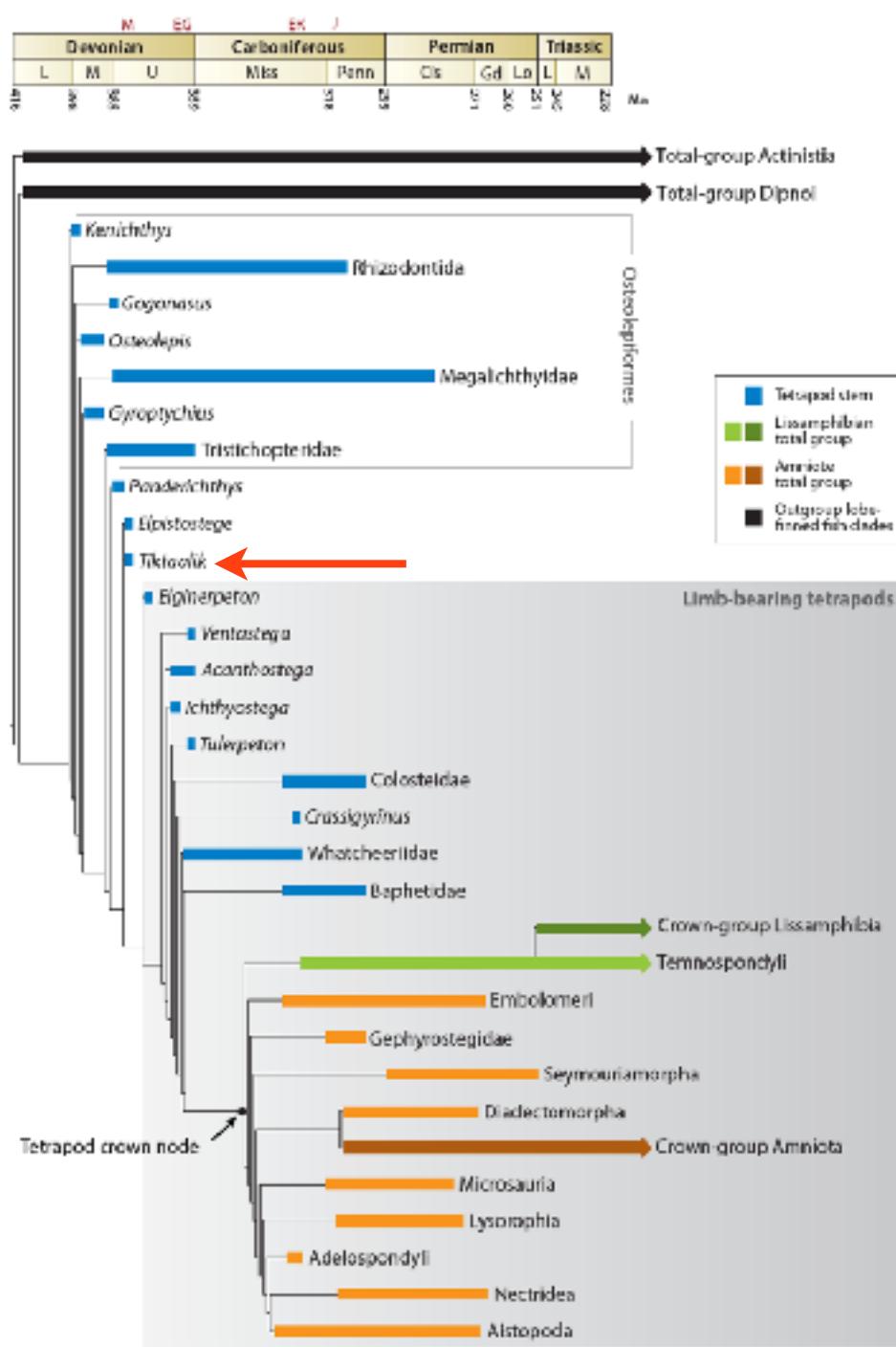
Osteolepis

ancient lobe-finned fishes



Eusthenopteron





Tiktaalik





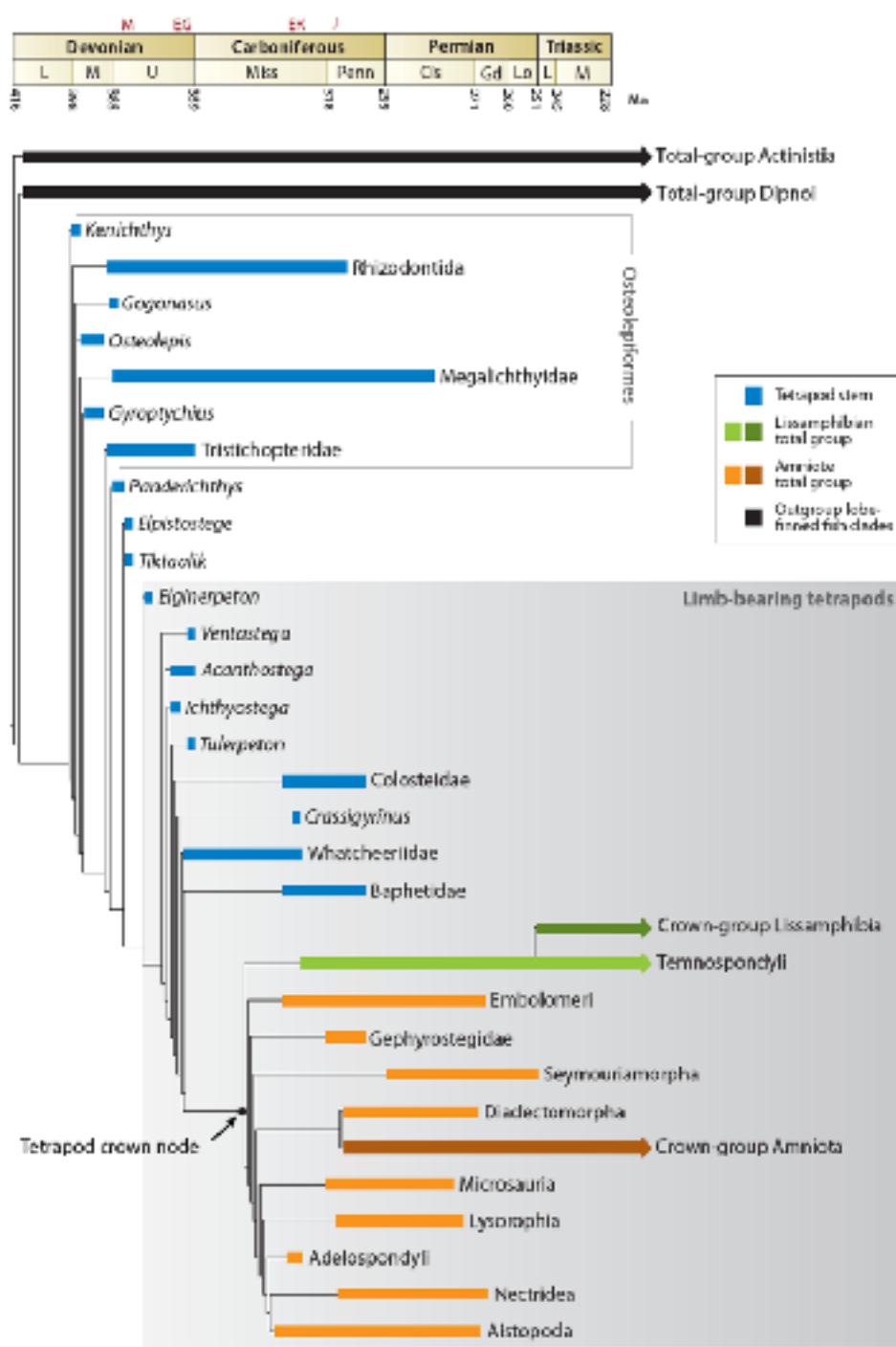
Tiktaalik could paddle & do push-ups...

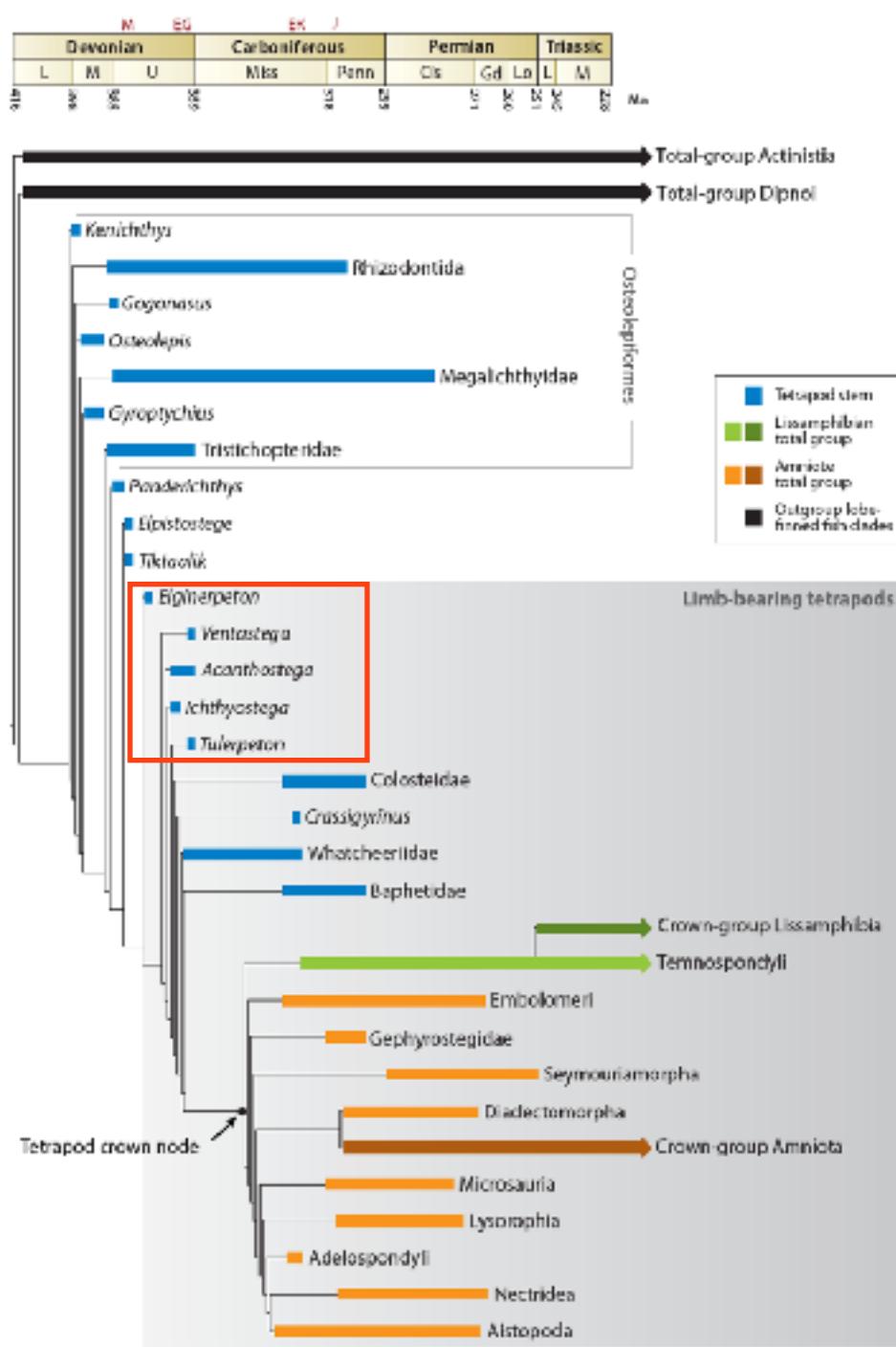
Fin as a Paddle



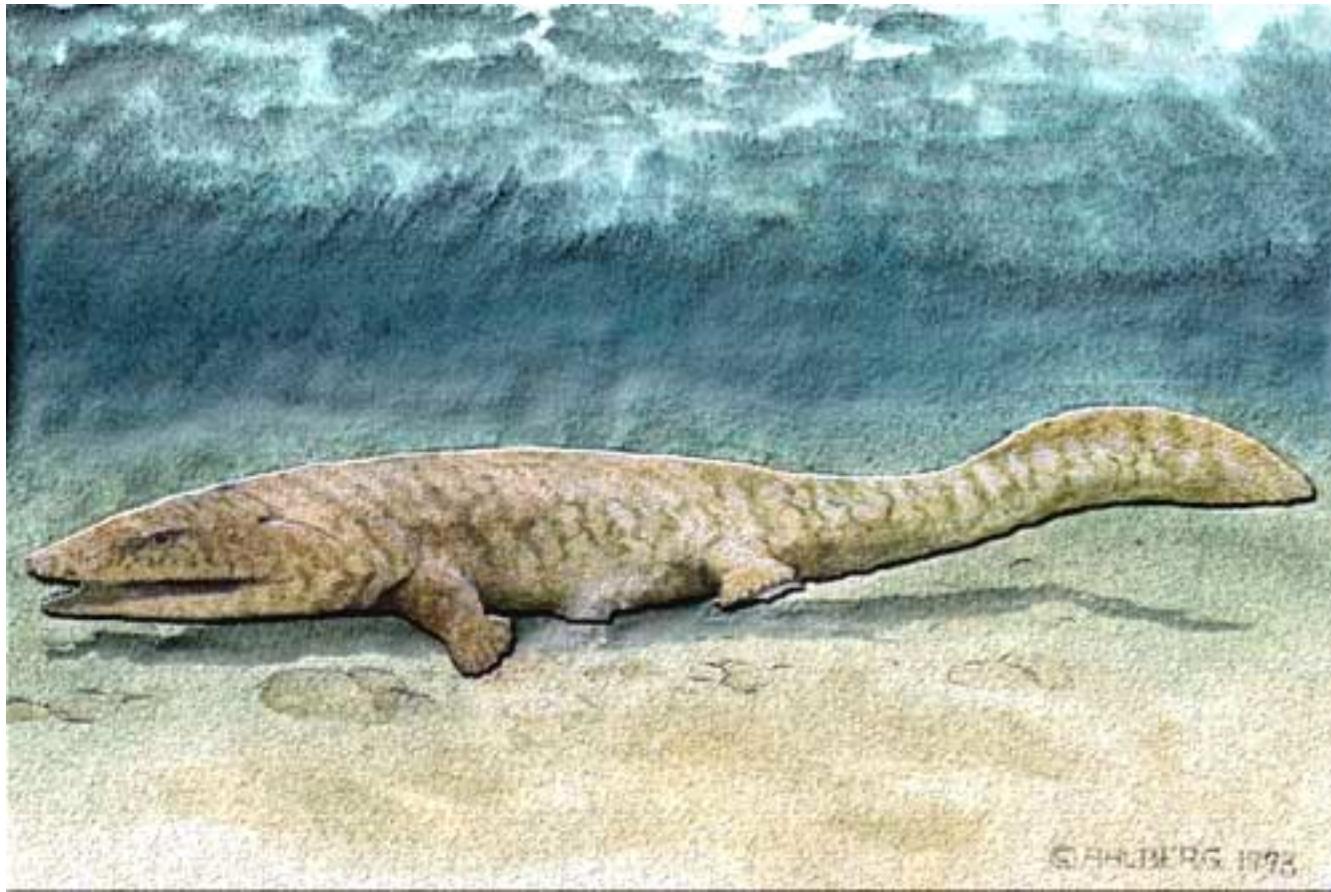
Fin as a Prop







early limb-bearing tetrapods



Elginerpeton

- 370-364 mya
- Earliest known limbed tetrapod

Per Albergh

Acanthostega



- 365 mya
- Best-known early tetrapod
- Limbs with 8 digits
- Aquatic

Acanthostega



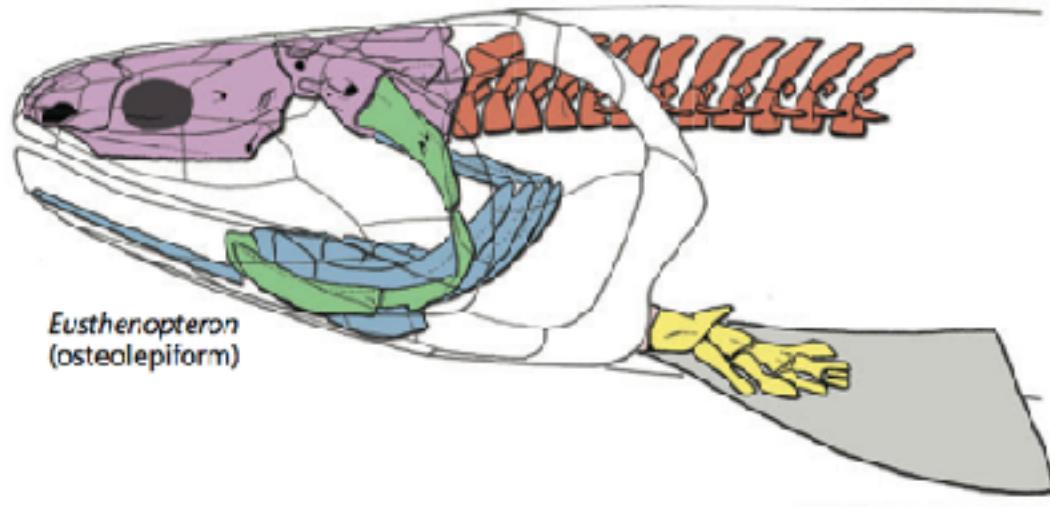
Picture from *Science*
(Janice McCafferty)

Ichthyostega

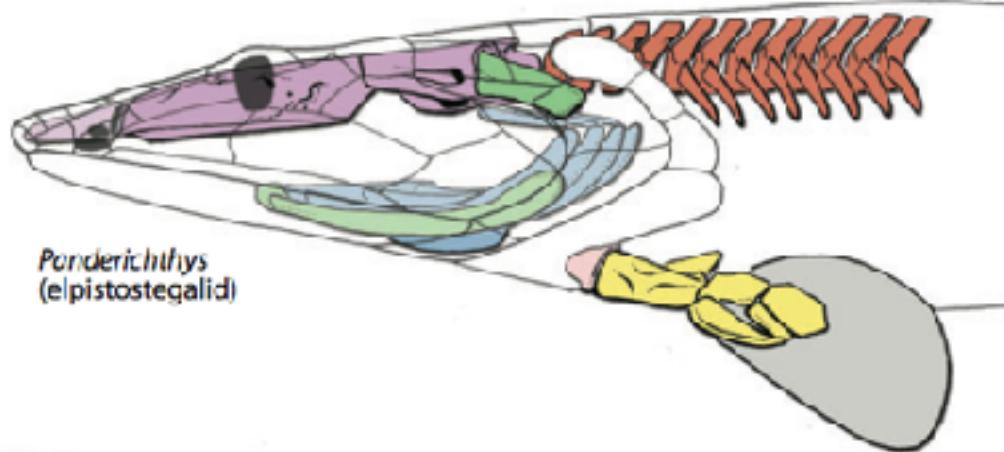


- 365 mya
- Limbs with 7 digits
- Fish-like tail but likely some ability to move on land

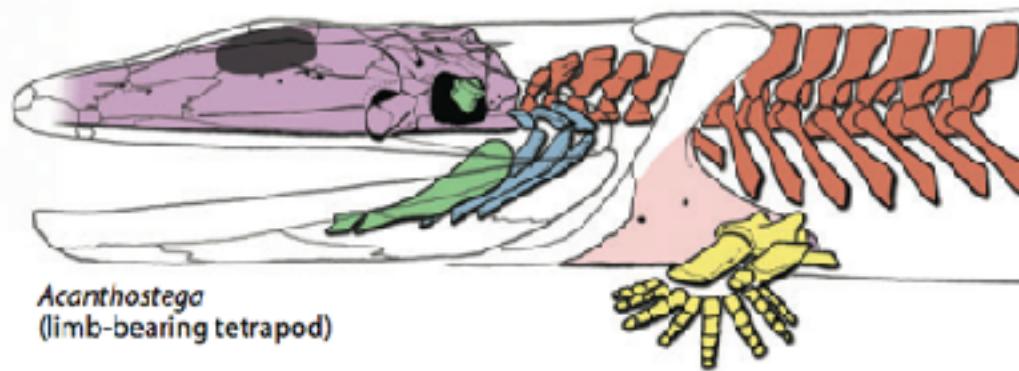
All of these organisms had limbs but were aquatic!



Eusthenopteron
(osteolepiform)

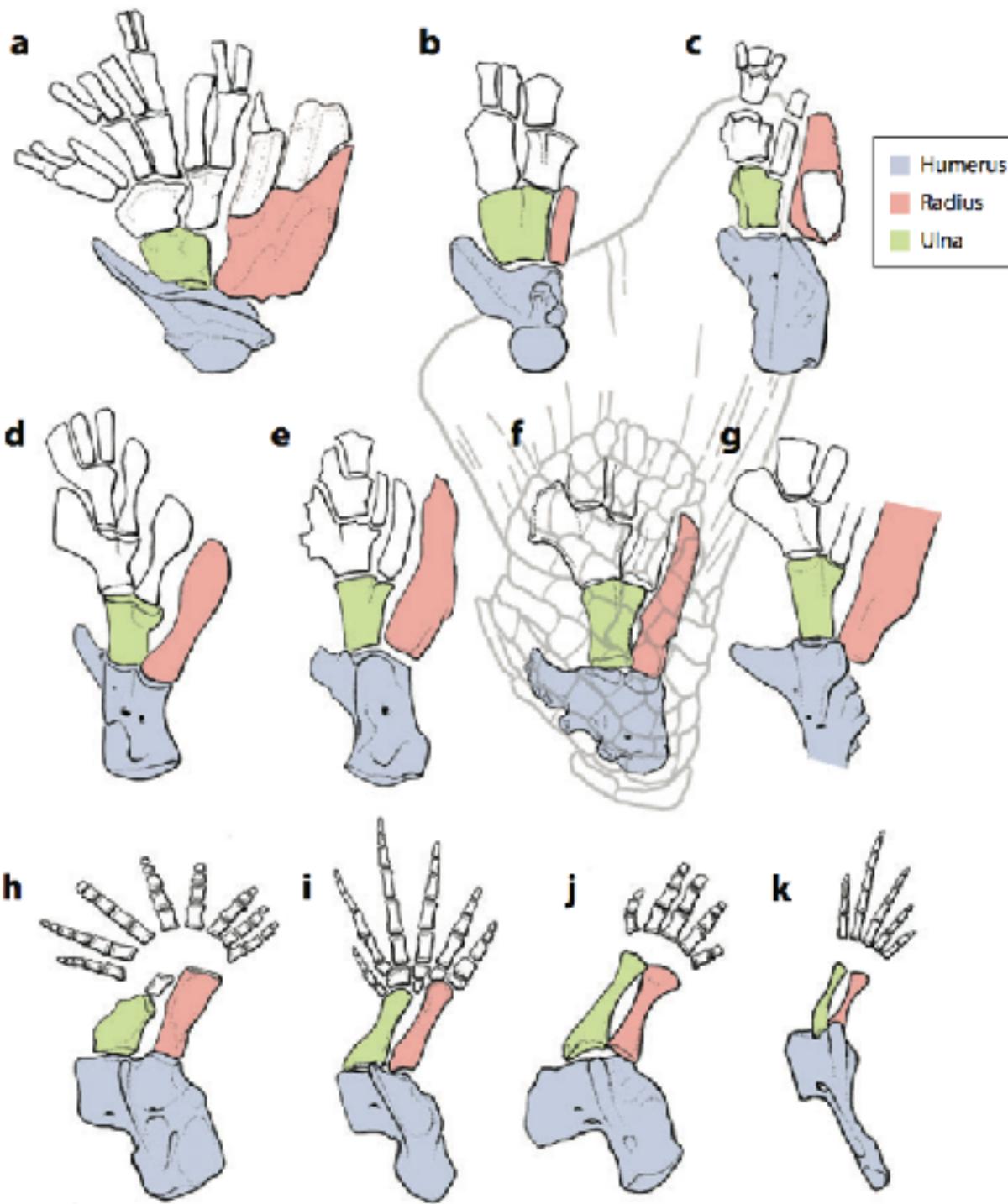


Panderichthys
(elpistostegiid)

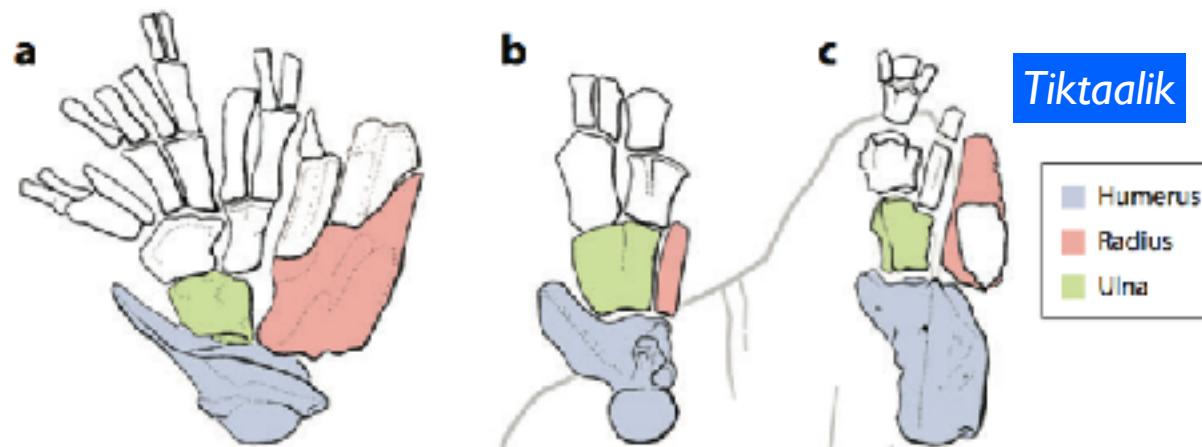


Acanthostega
(limb-bearing tetrapod)

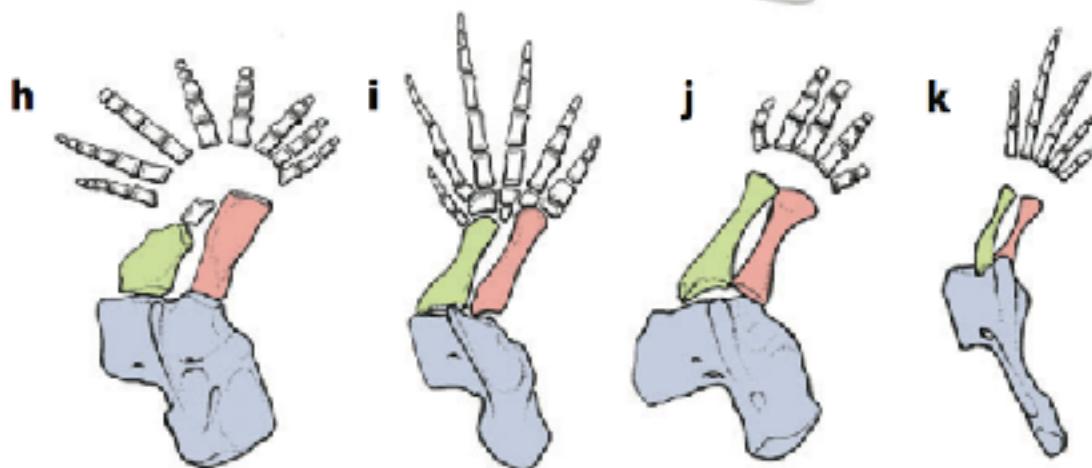
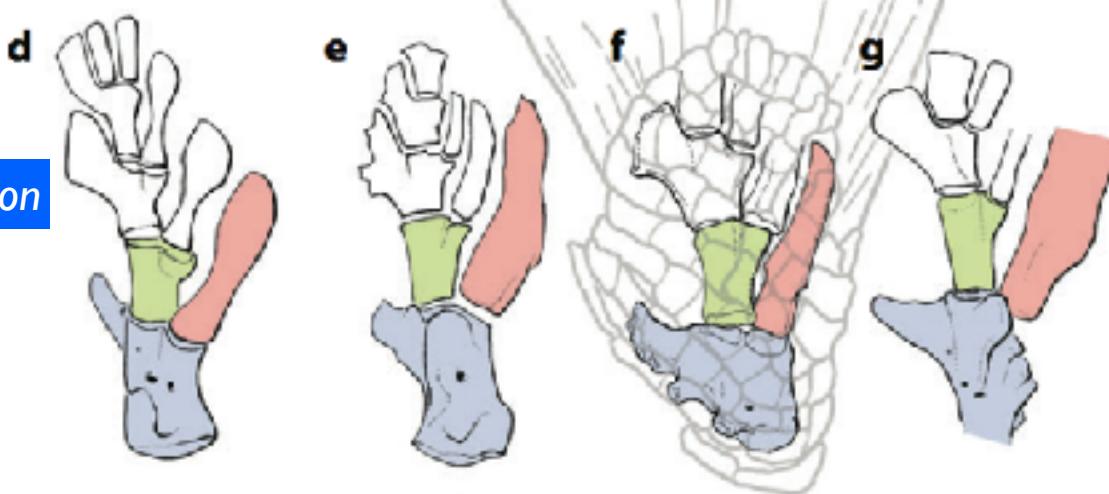
- Braincase
- Hyoid arch
- Gill arches
- Vertebral column
- Primary (endoskeletal) pectoral girdle
- Primary (endoskeletal) pectoral fin/forelimb
- Finweb (dermal skeletal)

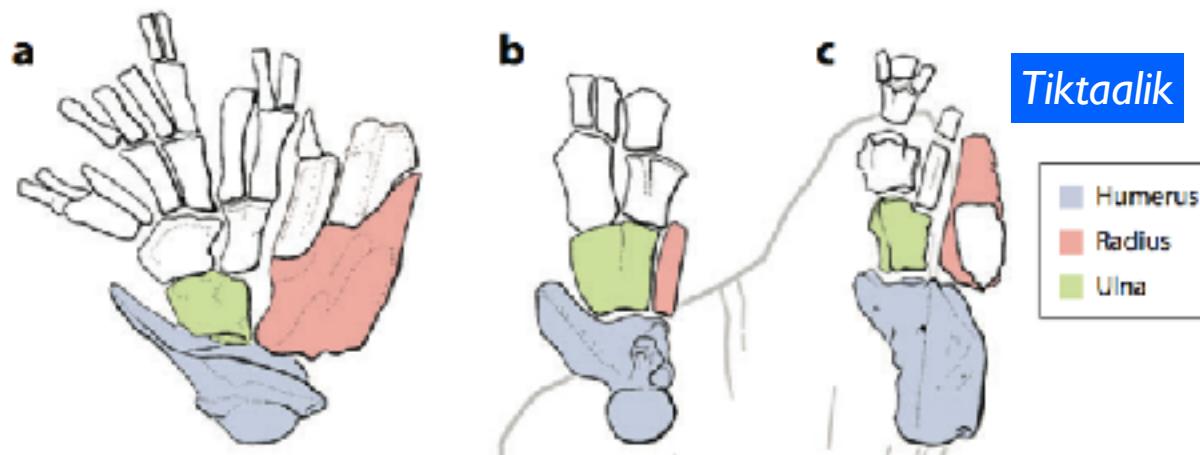


Tiktaalik

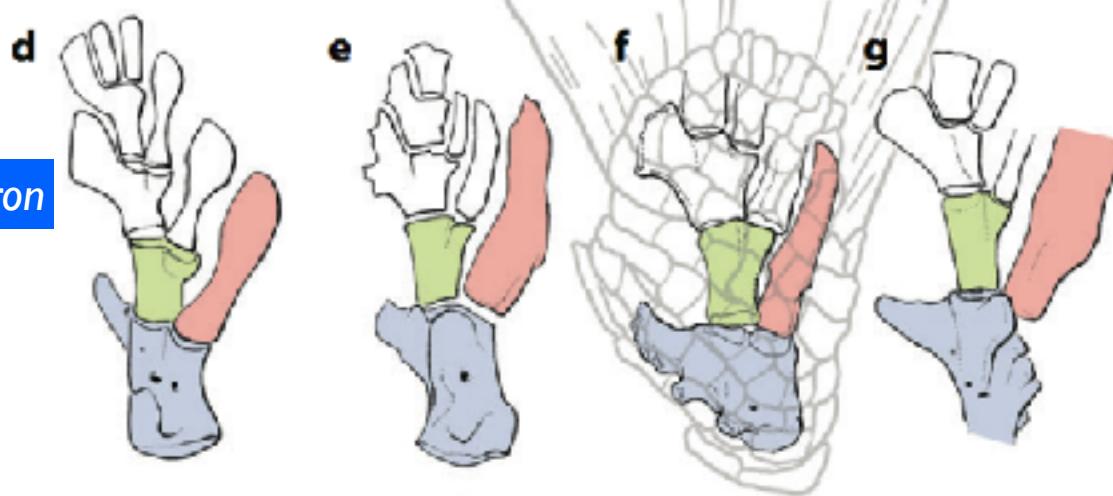


Eusthenopteron

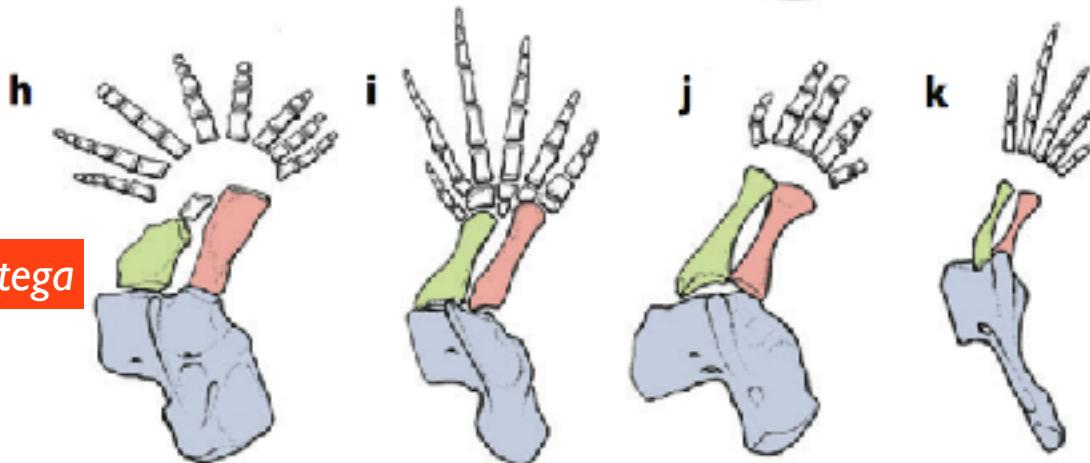




Eusthenopteron

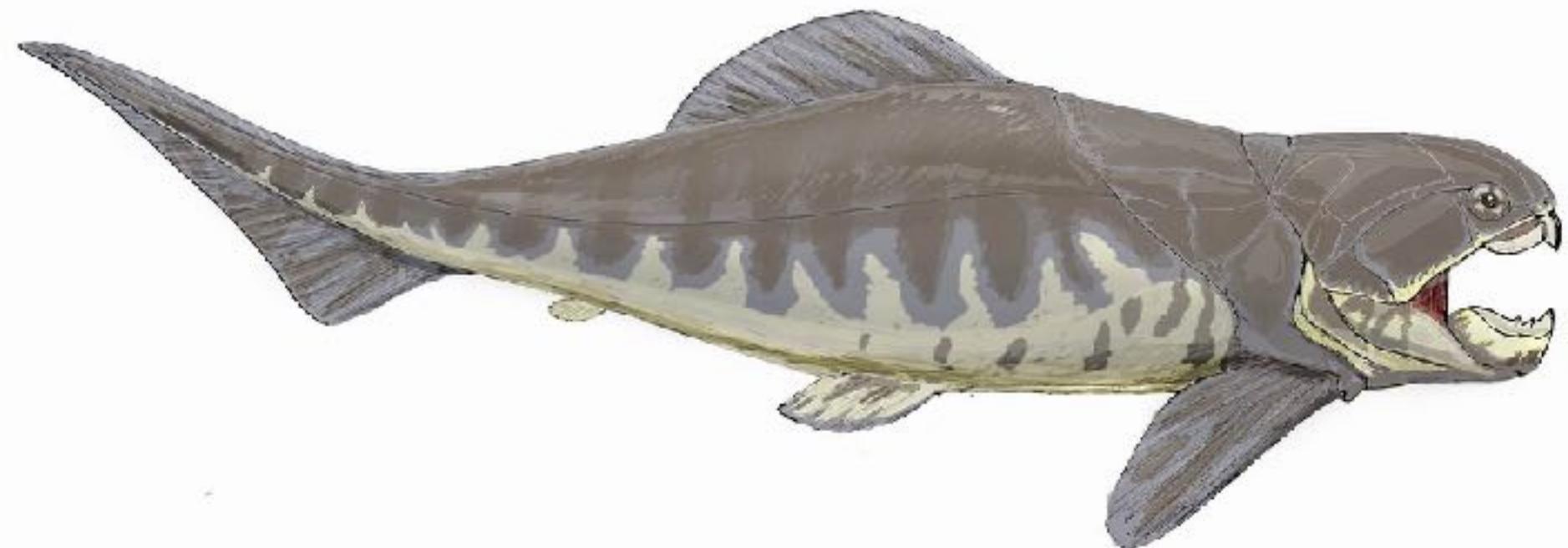


Acanthostega



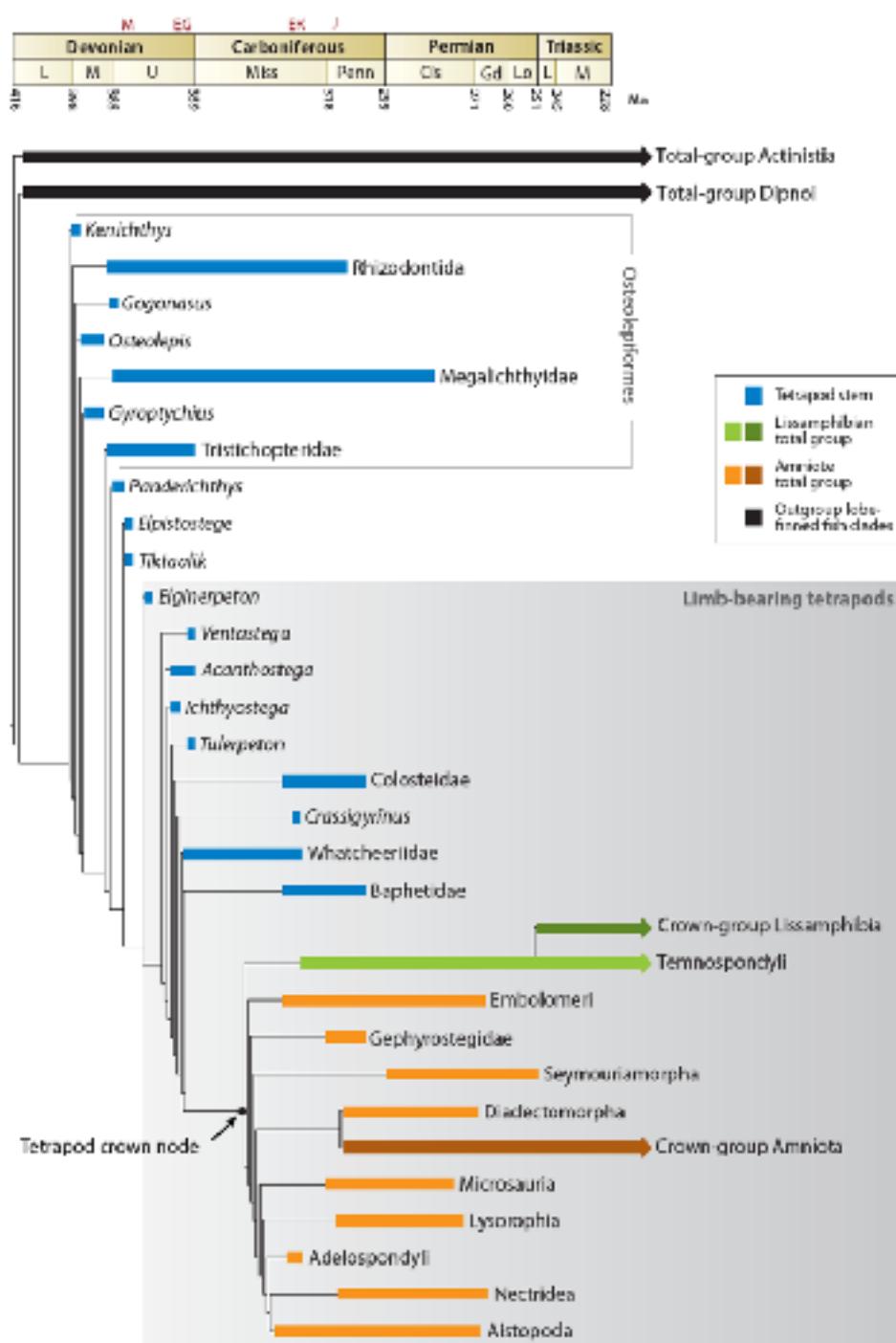
Cope's rule:

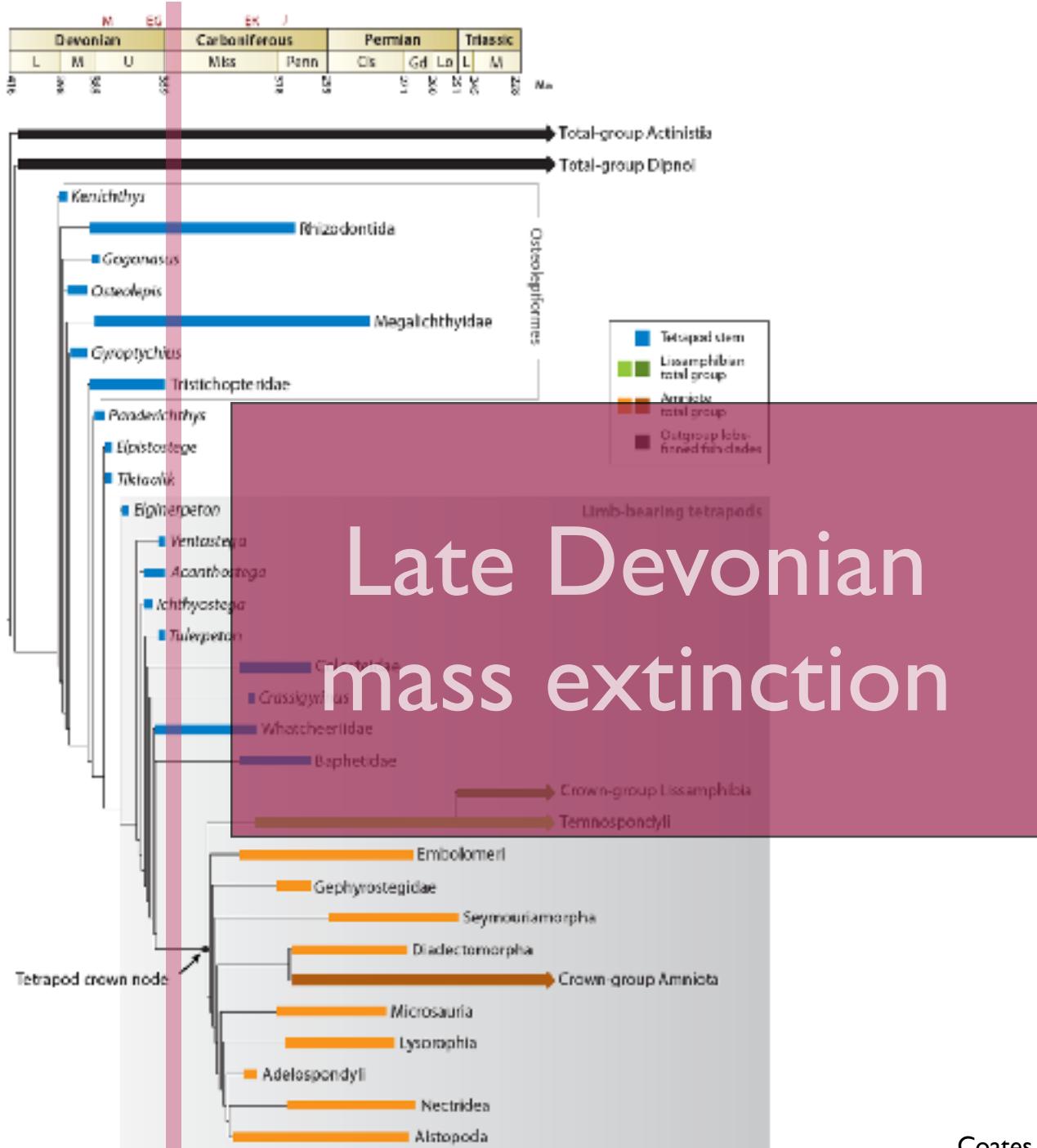
over evolutionary time, lineages within animal groups tend to **increase in body size**



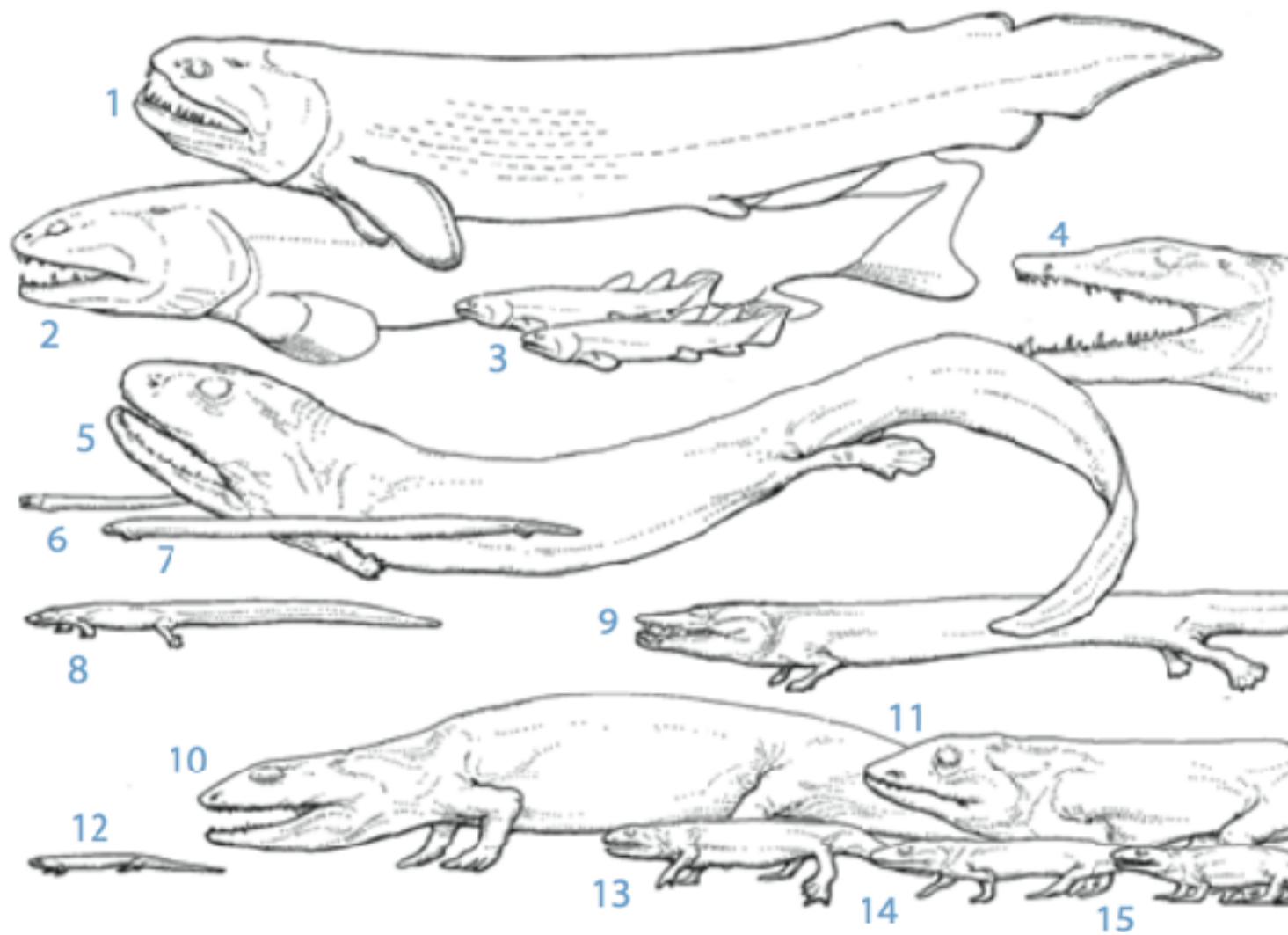
Dunkleosteus, a Devonian placoderm







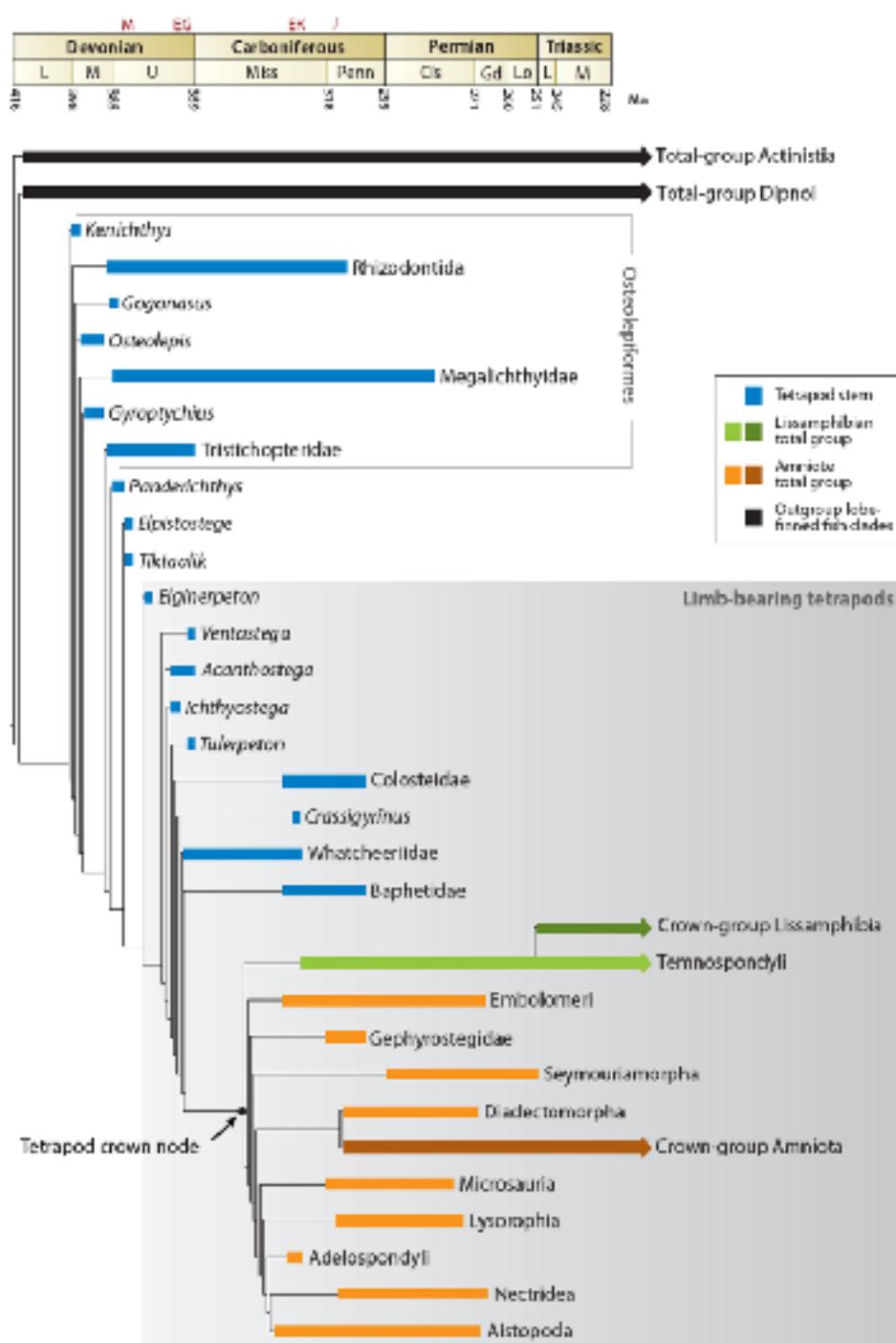
Carboniferous tetrapods

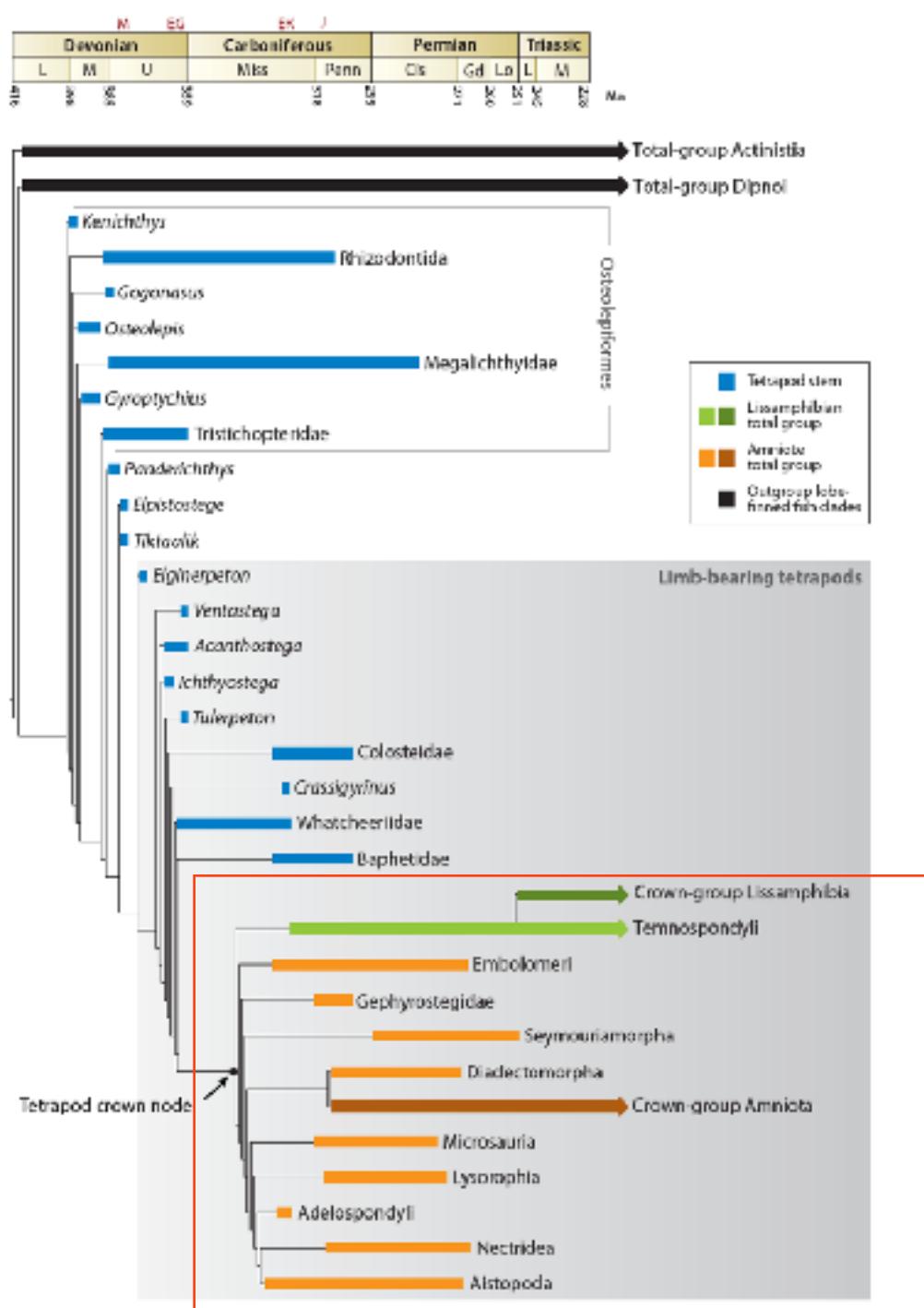


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Crassigyrinus will haunt your nightmares





The Lilliputians welcoming Gulliver

